Plant Pathology Circular No. 180
August 1977

Fla. Dept. Agric. & Consumer Services
Division of Plant Industry

CITRUS CANKER

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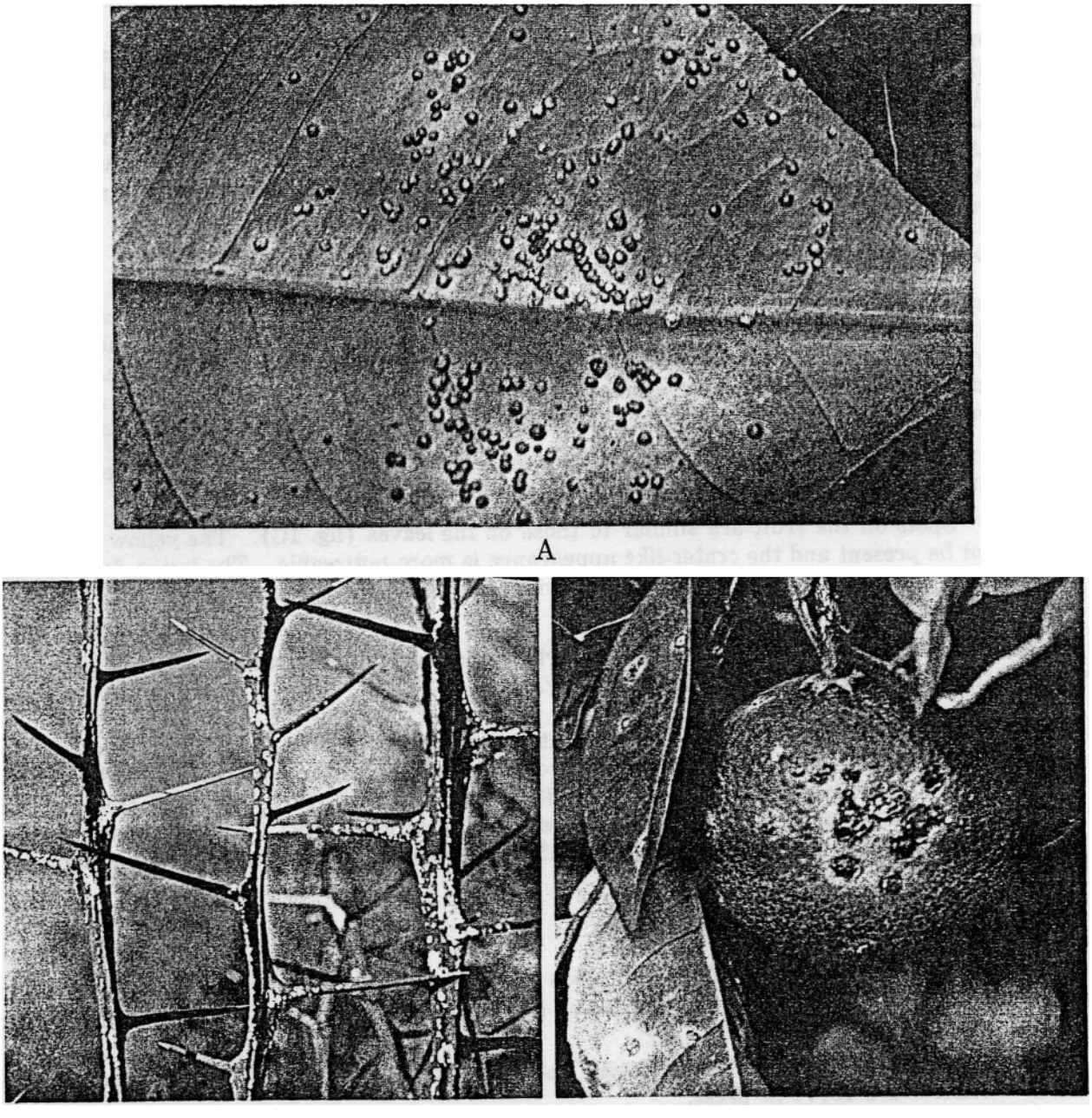
Citrus canker, caused by the bacterium *Xanthomonas citri* (Hasse) Dowson, is one of the most serious foreign citrus diseases known (2). Although not presently in Florida, it was found at a Monticello nursery in 1912. The disease rapidly became established in the citrus groves of



A B C

Fig. 1. Citrus canker caused by *Xanthomonas citri.* A) Leaves with raised tan lesions surrounded by yellow halo. B) Twigs showing cratered, brown lesions. C) Fruit showing raised, brown cankers, some with yellow halo.

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Florida. The State Plant Board (now the Division of Plant Industry) was established in 1915 to eradicate citrus canker, and with close cooperation of the Bureau of Plant Industry, United States Department of Agriculture, and private industry, the disease was declared eradicated by 1933. Procedures used during this campaign included burning diseased trees and seedlings, prohibiting movement of trees or budwood within one mile of an infested property, and disinfesting all clothing and tools used in these groves. A quarantine was established in 1915 which prohibited entry into the United States of citrus stock (3). During the Florida eradication campaign more than 257,000 grove trees and 3 million nursery trees were destroyed (2). The eradication, which cost 6 million dollars for Florida, excluding the value of trees and nursery stock (2), saved an industry valued at 500 million dollars in 1934 (unpublished report). Now, the industry covers 850,000 acres and is valued at 3 billion dollars (3).

The present distribution of the disease includes several countries in Africa, Asia (especially Japan), New Guinea, Caroline and Mariana Islands, Hawaii, South America (Brazil, Argentina, Uruguay, Paraguay), Malagasy Republic, Iraq, Afghanistan, Pakistan, and Vietnam. The disease has been eradicated from Australia, Mozambique, and South Africa as well as the continental United States (2). In order to prevent the reestablishment of this disease and what could be an infinitely more costly eradication effort, everyone needs to be made aware of and alerted to the symptoms of this dreaded disease.

SYMPTOMS. The citrus canker organism attacks leaves, twigs, and fruit.

Leaves: Spots are small, round, slightly raised and spongy, white at first then becoming tan to brown (fig. 1A). The epidermis on both leaf surfaces which covers the lesions ruptures, producing a crater lined with tan-colored, spongy tissue. An oily, yellow-brown halo develops around the spot, and may persist even after the lesion is old. The spots attain a size of 3-5 mm but may coalesce to form larger areas. Typical canker spots are somewhat elevated (2).

Twigs: Lesions on the young twigs are like those on the leaves (fig. 1B). On the older twigs they are more prominent or less irregular in shape (1).

Fruit: Spots on the fruit are similar to those on the leaves (fig. 1C). The yellow halo may or may not be present and the crater-like appearance is more noticeable. The lesion does not penetrate very deeply into the rind, but does provide entrance for secondary organisms, which can cause fruit rot (1).

Citrus with symptoms similar to those described above should be submitted to the Winter Haven laboratory of the Division of Plant Industry.

CONTROL. Exclusion of canker from the citrus growing area is by far the best method of control. If the disease becomes established it would be necessary to establish eradication procedures, such as burning infected trees, prohibiting movement of fruit, buds and trees, and disinfesting all clothing, tools, and equipment used in the infested area. Spraying with materials such as fixed copper and streptomycin can reduce disease incidence, but will not eliminate infections.

Literature Cited

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